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      A      RRRR  PPPP      A      N  N  EEEE  TTTT
     A A    R  R    P  P    A A    NN  N  E      T
    A  A  A  RRRR  PPPP    A  A    N  N  N  EEE    T
   A  A  A  R  R  P      A  A  A  A  N  NN  E      T
  A      A  R    R  P      A      A  N  N  EEEE    T

      N  N  EEEE  W      W  SSSS
     NN  N  E      W      W  S
    N  N  N  EEE  W  W  W  SSSS
   N  NN  E      W  W  W  W  S
  N  N  EEEE  WW  WW  SSSS

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Issue 5

July 1973

ARPA Network Information Center
Stanford Research Institute
Menlo Park, Calif. 94303

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Jean Iseli (MITRE)
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The online version is sent to all Network members who receive online delivery from NIC. It can also be accessed by anyone who logs into SRI-ARC and uses the query language named NIC.

The online version contains the month's basic issue. Each week a branch is added, containing items received during the week. This update material is added to the new feature articles to produce the next month's issue.

For scanning on TTY:

control c
nic CR
a/rpanet news/ CR
s/how/ (whatever you choose from the contents) CR
(to stop printing) control o (to exit) q/uit/ CR
(to show statement numbers) v/:type View specs:/ mg CR

For printing NEWS:

nls CR
l/load/ f/file/ <nic>arpanewscover CR CR (for cover, masthead)
or
l/load/ f/file/ <nic>arpanews CR CR (for NEWS contents)
or
l/load/ f/file/ <nic>arpanewsup CR CR (for UPDATES only)
o/utput d/evice t/eletype/ CR

One hardcopy of the monthly issue will be sent to each Liaison, Principal Investigator, and Station Agent at Network Sites, and to Network Associates. Local reproduction is encouraged.

Contributions to the NEWS may be forwarded to JI at NIC through the Journal, to ISELISUSC-ISI, or to Jean Iseli, The MITRE Corporation, National Systems Design Dept. Westgate Research Park, McLean, Va. 22101. News may also be forwarded to JBN through the NIC Journal, or mailed to Jeanne North at SRI.

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[Users have not availed themselves of this space as yet.
The editors hope this Forum will begin to be used for questions
and comments]

ARPANET NEWS Information About the Publication
(See inside cover)

CALENDAR Events of Network Interest
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Schedule

*8/20-24 SU-AI-CON Online Demos
10/1-3 (ACM-PROGLANG) ACM Symp on Programming Languages
10/15-17 IEEE
10/21-25 (ASIS) ASIS-73 Annual Meeting
11/5-7 (IEEE-SYS) Conference on Systems, Man & Cybernetics
11/7-8 (ARCH) Symp on High Level Language Computer Arch
11/12-13 (TEXAS) 2nd Texas Conf on Computing Systems
11/13-15 DATA-SYMP
1/8-10 74 HAWAII-CON
5/6-10 74 (NCC) 1974 National Computer Conference

Meetings announced in earlier issues are listed here without parenthesis.

A meeting listed here is sponsored by the Group named. Many meetings are open to other interested people. NIC document references are given where available.

Meetings sponsored by Groups in the Network are indicated by *

(ACM-PROGLANG) ACM Symposium on Principles of Programming Languages
1-3 October 1973. Copley Plaza Hotel, Boston. Sponsor: ACM
SIGMICRO. Contact: John Roberts, Naval Research Lab, Code 5030,
Wash., D.C. 20390.

(ASIS) ASIS-73 Annual Meeting
21-25 October 1973, Los Angeles Hilton. Theme: Information:
Benefits and Costs. Chmn: H. W. Jones, Northrop Corp, Aircraft
Div., Hawthorne, CA 90250.

(IEEE-SYS) Conference on Systems, Man & Cybernetics
5-7 November 1973, Prudential Center, Boston. Sponsor: IEEE-SMC.
Contact, Sheldon Baron, BBN, 50 Moulton, Cambridge, MA 02138.

(ARCH) Symp on High Level Language Computer Architecture
7-8 November 1973, U. of Maryland, College Park. Sponsors: ACM
SIGPLAN and SIGARCH, and IEEE-CS TCCA. Chmn. E. I. Organick. Prog.
Chmn. Yaohan Chu, Computer Science Center, U. of Maryland, College
MD 20742.

(TEXAS) 2nd Texas Conf on Computing Systems
12-13 November 1973, Austin, Texas. Gen Chmn: Raymond Yen, U. of
Texas, Austin, TX 78712. Prog. Chmn. Terry Welch, U. of Texas,
Austin.

(NCC) 1974 National Computer Conference
6-10 May 1974. McCormick Place, Chicago. Sponsor, AFIPS. Gen.
Chmn. S. S. Yau, Dept. of Comp. Sci., Northwestern, Evanston, IL
60201. Abstract due, 1 October 1973; completed paper due 15
November 1973.

FEATURED SITE UCSB Computer Systems Laboratory
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.....Roland F. Bryan

TODAY

The Computer Systems Laboratory (CSL) is an Organized Research Unit located on the campus of the University of California at Santa Barbara (UCSB). The primary mission of CSL is research and development in computer science and technology. Its mandate is to provide the environment and support, on a multi-disciplinary basis, for faculty and graduate students to interact in the exchange of ideas and interests related to computing.

To this end, the staff of CSL provides both the facilities and the manpower to assist in computer systems development.

BACKGROUND

In the early 1960's the Laboratory, with ARPA support, began the implementation of the Culler-Fried Online System. This interactive system with graphic display output is now in general use on an IBM 360/75. Approximately 60 graphic display terminals located at UCSB and elsewhere across the nation are supported by this system.

In support of its research projects the Laboratory has designed numerous pieces of custom hardware including graphic terminals, communication controllers, and peripheral equipment interfaces.

The Laboratory produced one of the first IMP interfaces and Network Control Programs on the ARPA Network (November 1969). Since then CSL has provided hardware interfaces for other sites on the Network and a variety of software packages for Network use.

The UCSB central Computer Center has an IBM System/360 Model 75 with 2-1/2 million bytes of core, two 2314 disc storage facilities (16 drives), six tape drives, one card reader-punch, two line printers, and interfaces for the campus Online System and ARPA Network.

The Laboratory has an SEL 810B with an interactive signal processing system. This processor also has a minimal NCP for communication with the Network by way of the 360/75. The SEL is connected to an IBM 1800 as well. Both systems support graphic terminals, analog input and output, and a variety of video and audio equipment.

RESOURCES

The major custom hardware attachments to the 360/75 are:

Interface-IMP/360 - Link to the ARPANET
Multi-line Controller - Interface for custom devices
Store-and-Forward Buffer - Graphic and RJE terminal interface
High-speed Data Link - 360/75 to SEL 810B
Parallel Data Link - SEL 810B to IBM 1800

Other attachments include mini-computers in Chemistry, Poli-Sci, and Physics, and many graphics terminals including a Tektronix 4002 and an Imlac as well as our locally fabricated terminals. The mini-computers and terminals all have access to the ARPA Network via the Network Control Program resident in the 360/75.

The major software systems are as follows:

- Operating System - OS MVT Release 21
- HASP - Supports local and remote batch processing
- On-line System (OLS) - Interactive graphics system
- Network Control Program - Interface to ARPA Network

Standard compilers and programs available on the 360/75 include:

- ALGOL(F&W), ASSEMBLER(F&G), ANISN COBOL, ANS COBOL II & IV,
- CSMP, EXTERMINATOR-2, FORTRAN IV(G&H), IMS-1, GPSS, PL/1, PL/C,
- RPG, SNOBOL, SORT/MERGE, TSP, WATFIV, and a variety of
- statistical packages (BIOMED, CROSS TABS II, DATA-TEXT, SAS,
- SPSS, OSIRIS II, UC/360)

PERSONNEL

Personnel concerned with Network activities that can be contacted regarding different areas of interest are:

- Ron Stoughton - General software questions
- Ed Faeh - Graphics and DRS
- Mark Krilanovich - NCP, RJS, SMFS
- John McAfee - SEL signal processing
- John Pickens - Network resource sharing
- Nancy Vaughan - Experimental accounts
- Gloria Gray - Computer Center accounts
- Roland Bryan - Hardware

The Principal Investigator for ARPA Network projects is Roland Bryan. Laboratory personnel can be reached by telephone through the main CSL number: (805)961-3221. Network mail can be sent by way of NIC with idents or to BRYAN@USC-ISI, UCSB@USC-ISI, or UCSB@SRI-ARC.

PROTOCOLS

FTP Revised

A revised File Transfer Protocol document for the Network was issued 12 July by Nancy Neigus as a result of months of discussion (RFC 542, NIC 17759. The gross structure remains the same; differences occur in the definitions of types and modes, in specification of data connection and data sockets, in command-reply sequences, and in functions dependent on TELNET protocol. The model has been clarified and enlarged to allow inter-server file transfer, and several new commands have been added to accommodate more specialized (or site-specific) functions. Until the changeover date of 1 February 1974, the old FTP will be available on socket 3 and the new version implemented on socket 21. After 1 February the new FTP will shift to socket 3.

RESOURCE NEWS

CASE-10 Developments: HACK,LCF,DELPHI

CASE-10 is developing a comprehensive system of software to enable the free exchange of information and encourage resource sharing between systems and users. The first component, HACK, is a capability for resource sharing of information and user programs between users both at a given site and between sites. HACK is currently resident at CASE-10 (type: @HACK<cr>), SRI-ARC (type: @<NETPROG>HACK<cr>), and USC-ISI (type: @<NETWORK-HELP>HACK<cr>). HACK is evolving in response to user suggestions, comments, and contributions as well as in compliance to the design of its author, Jim Calvin.

Possible future extensions to HACK include communications between the distributed versions so that both local and network level information and programs may be shared.

LCF, the second component, is a TENEX subsystem librarian that is currently operable, in an initial version at CASE-10. DELPHI, which is being developed to enable a System to inform users relative to its subsummed resources is also operable in an initial version at CASE-10. Inquiries concerning these capabilities may be directed to CALVIN@CASE-10 through FTP-Mail or TENEX SNDMSG.

The capabilities, in compliance to network models, are developed to contain self documentation which may either be viewed in command summary form (by typing: ?<cr>) or in brief tutorial form (by typing: DESCRIBE (command name)<cr>). For more help, the user can also type HELP<cr>. Users are encouraged to try these systems as their availability becomes more wide spread. User comments, suggestions, and support are encouraged and may be directed either to the author at CASE-10, or to NETWORK-HELP at USC-ISI.
.....Jim Calvin

ANTS USERS GROUP NEWSLETTER ISSUED

Volume 1 Number 1 of the ANTS USERS GROUP NEWSLETTER has been issued, dated 1 July 1973. This is a bimonthly newsletter between users and interested parties of the ARPA Network Terminal System Users Group. For copies, contact the editor, Jack Bouknight, Network & Terminal Systems Project, Center for Advanced Computation, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801, or Via Net Mail to: BOUKNIGHT@USC-ISI.

NASA AMES

The University of Illinois has signed a contract with the NASA AMES Research Center to provide the Computational Division with an ANTS and extended graphics display capability. The system will include a PDP-11/45 with 32K words of memory, VERSATEC printer/plotter, mag tapes, disk packs, a Distant HOST interface to ARPANET, and a PDP-11/10 satellite I/O processor.
....Extracted by Jean Iseli from the ANTS USERS GROUP NEWSLETTER.

LINCOLN LABS

The University of Illinois is contracting with MIT's Lincoln Labs Seismic Discrimination group to provide them with an ANTS and graphic display capability to include a PDP-11/40, 24K words core, disk packs, VERSATEC printer/plotter and a GT-40 Display system to be employed for display of seismic data which is Network resident.
....Extracted by Jean Iseli from the ANTS USERS GROUP NEWSLETTER.

PLANS
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Establishment of a Development Corporation

A Development Corporation, to be affiliated with the University of Illinois, is proceeding rapidly towards establishment. The corporation is intended to provide a technology transfer mechanism from university research to useful products and service. A close relationship with the University is envisioned and the distribution, support, and customization of the ANTS system is projected to become one of the first service functions to be transferred. It is expected that the development corporation will be established prior to October, 1973.
....Extracted by Jean Iseli from the ANTS USERS GROUP NEWSLETTER.

Army Materiel Command

Work is proceeding on the installation of an RJE access system for the Army Materiel Command; two ANTS systems will employ ARPANET to direct RJE job streams from Aberdeen to Ft. Belvoir's CDC 6600. System integration is projected to begin in September 1973.
....Extracted by Jean Iseli from the ANTS USERS GROUP NEWSLETTER.

OTHER NEWS

SEISMIC DATA

The ARPA Seismic Data Program is in the process of designing a system for the acquisition, movement, storage, processing and retrieval of world-wide seismic data. The proposed system would use communication satellites and the ARPANET to move data from select seismic stations around the world to an archival mass store on the ARPANET. Specialized processing and analysis of this data would be performed using the computational resources of the ARPANET. Interested members of Seismic Research Groups would retrieve this data in the course of exploring current seismological problems of interest. Groups participating include: ARPA, VELA Seismological Center, NASA-AMES, COMSAT, Lincoln Laboratory, NOAA Boulder and Albuquerque, and others.

.....Dave Russell/ARPA

801 DATA SET DIAL-UP MODEM NEEDED

Michael H. Smith, Department of Electrical Engineering and Computer Sciences, University of California at Berkeley, is attempting to find the loan of an 801 Data Set Dial-up Modem in order to interconnect an HP 3000 to the ARPANET. The interconnection is required in order to employ ARPANET resources in the development of Jason (described below) and also to provide the capabilities of Jason over the network. MIT and SRI-AI are cooperating in this development by offering computer resources to Michael and his collaborator, L. Stephen Coles, Artificial Intelligence Center, Stanford Research Institute. Their joint work is directed to the design and implementation of a relatively inexpensive, but versatile, computer-controlled robot suitable for use in either a research or education environment. The Berkeley robot, named JASON, is nearing completion and hardware testing is being initiated.

JASON is designed to permit it to navigate and manipulate simple objects in a real-world environment. It employs a variety of sensor-motor and communication devices including: an ultrasonic range, motion, and material detector, an isolated-word speech recognizer, a limited speech synthesizer, six inexpensive proximity detectors, and two arms for simple manipulation; all of which are mounted on a platform chassis. The robot vehicle is remotely controlled, using radio telemetry, by a time-shared, virtual memory, HP-3000 mini-computer, utilizing adaptive learning programs.

It is the intent of the two named collaborators to present their work at the Third International Joint Conference on A. I. If anyone would like to assist this Ph.D. candidate through the loan of the above cited equipment, please contact Michael at JPL where he is working for the summer at: (213) 354-4197 or 3888. Your assistance in this matter would be a step towards ensuring the availability on ARPANET of a unique and worthwhile capability.

.....Jean Iseli

FORUM

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The editors hope that next month's issue will contain some user contributions for this section.

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